"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Production of cadmium selenide ...

conditions had an area of 2-12 cm^2. There are 7 figures, 1 table, and 16 references: 8 Soviet and 8 non-Soviet. The three most recent references to English-language publications read as follows: R. P. Ruth, J. C. Marinace, W. C. Dunlap. J. Appl. Phys., 31, 6, 995, 1960.
J. H. V. Setty, H. Wilman. Trans. Farad. Soc., 51, 7, 984, 1955.
M. Davis, R. F. Lever, J. Appl. Phys., 27, 835, 1956.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: April 3, 1961

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, I.P.; SEMIKOZOV, G.S.

Colorimetric determination of microquantities of copper in nickel and cobalt solutions. Zav.lab. 27 no.1:17-20 '61. (MIRA 14:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Copper—Analysis) (Nickel—Analysis)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

STRAKHOV, L.P.; CHERNYAVSKIY, B.G.; KALINKIN, I.P.; OVSYUK, Z.Sh.

Spectral distribution of optical changes in the contact potential of CdSe films. Fiz.tver.tela 4 no.12:3422-3426 D '62. (MIRA 15:12)

1. Leningradskiy gosudarstvennyy universitet.
(Cadmium selenide—spectra)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

S/181/63/005/001/020/064
B102/B186

AUTHORS: Kalinkin, I. P., Sergeyeva, L. A., Aleskovskiy, V. B., and Strakhov, L. P.

TITLE: Investigation of the structure of thin cadmium selenide films condensed onto the (100) and (110) faces of rock-salt single crystals

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 124-128

TEXT: CdSe was sublimated under conditions described in FTT, 3, 9, 2640, 1962 and deposited on the (100) and (110) faces of NaCl kept either at room temperature or at 250° or 300-350°C. The hexagonal polycrystalline films (c=7.02Å a=4.3)Å formed on these faces were investigated using a microscope, an electron microscope and electron diffraction. In the case of sublimation at 250°C onto the (100) face the following phases were observed: A cubic one with $(100)_{cub} \parallel (100)_{NaCl}$ and $[1\bar{1}0]_{cub} \parallel [100]_{NaCl}$; two hexagonal phases with $(0001)_h \parallel (100)_{NaCl}$, $[11\bar{2}0]_h \parallel [1\bar{1}0]_{cub}$; a polycrystalline hexagonal phase; mixed phases e. g. cubic with hexagonal

Card 1/2

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interlayers, or cubic interlayers turned through 180°. With base temperatures of 300-350°C no change in film structure was observed. In the case of optimum sublimation of CdSe onto $(110)_{NaCl}$, a most perfect film with $(110)_{CdSe} \parallel (110)_{NaCl}$ was produced. The film obtained at 250° base temperature was less perfect. In order to eliminate the uncontrollable effects of oil vapors contained in the vacuum chamber, the etching figures obtained with several agents were studied by means of an МИМ-7 (MIM-7) metal microscope. The etching figures were in all cases square pyramids oriented diagonally to the lattice cubes. These pyramids grew with the etching time; after 10-20 minutes etching they covered the whole face. Numerous details on the film structure obtained from electron diffraction pictures are discussed. There are 5 figures.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: June 2, 1962 (initially)
July 23, 1962 (after revision)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, I.P.; ALEKSOVSKIY, V.B.

Spectrophotometric determination of the microquantities of copper and chlorine in cadmium selenide. Izv.vys.ucheb.zav.; khim.i khim. tekh. 6 no.4:553-556 '63. (MIRA 17:2)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta. Kafedra analiticheskoy khimii.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

L 11110-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3000783 S/0070/63/008/003/0459/0461

AUTHOR: Kalinkin, I. P.; Sergeyeva, L. A.; Aleskovskiy, V. B.; Strakhov, L. P.

TITLE: Electron diffraction study of the structure of single-crystal cadmium selenide films

SOURCE: Kristallografiya, v. 8, no. 3, 1963, 459-461

TOPIC TAGS: film, vacuum sublimation, electron diffraction, single crystal film, orienting substrate, microstructure, molybdenum glass, decomposition, cadmium selenide film, sodium chloride

ABSTRACT: The paper describes the latest results of studies by the authors on the deposition by vacuum sublimation of CdSe films on various substrates. By using as orienting substrates etched NaCl crystals which were subjected to preliminary mechanical and heat treatment (at 350—550C for 1—3 hr), "thin" (0.05—1μ) CdSe single-crystal films were deposited on the (100) and (111) faces of the crystals. Electronographic study showed that, depending on preliminary treatment and etching time, films with a cubic, hexagonal, or mixed structure

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

L 11110-63
ACCESSION NR: AP3000783

can be prepared. "Thin" CdSe films removed from NaCl crystals and transferred onto molybdenum glass were used as orienting substrates for preparing "thick" (~ 0.6μ) single-crystal films by additional vacuum sublimation (~ $5 \cdot 10^{-5}$ mm Hg) of CdSe. The temperature of the substrates varied between 150 and 350C. Additional deposition under selected unidentified conditions made it possible to prepare "thick" single-crystal CdSe films with either hexagonal, mixed, or cubic structures. "Thick" single-crystal films with a cubic structure could be prepared by additional vacuum sublimation only on the (100) face of NaCl crystals. "The authors are grateful to M. A. Rumsh for discussion of certain results of the work." Orig. art. has: 6 figures.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute)

SUBMITTED: 22Oct62 DATE ACQ: 21Jun63 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ALESKOVSKIY, V.B., prof.; BARDIN, V.V.; BOYCHINOVA, Ye.S.; BULATOV, M.I.; VASIL'YEV, V.P.; DOBYCHIN, S.L.; DUSHINA, A.P.; KALINKIN, I.P.; KEDRINSKIY, I.A.; LIBINA, R.I.; PRIK, K.Ye.; SETKINA, O.N.; KHEYFETS, Z.I.; YATSIMIRSKIY K.B., prof.; VASKEVICH, D.N., red.

[Physicochemical methods of analysis ; a laboratory manual] Fiziko-khimicheskie metody analiza; prakticheskoe rukovodstvo. Moskva, Khimiia, 1964. 451 p. (MIRA 17:12)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

SEMIKOZOV, G.S.; KRUGLOVA, Ye.G.; KALINKIN, I.P.

Determination of microquantities of copper with lead diethyldithiocarbamate in zinc solutions and electrolytes for galvanization. Izv. vys.ucheb.zav.; khim. i khim.tekh. 7 no.2:194-197 '64.
(MIRA 18:4)

1. Kafedra analiticheskoy khimii Leningradskogo tekhnologicheskogo instituta im. Lensoveta.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACC NR: AP7002397 SOURCE CODE: UR/0363/66/002/012/2110/2115

AUTHOR: Kalinkin, I. P.; Sergeyeva, L. A.; Aleskovskiy, V. B.

ORG: Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskiy institut)

TITLE: Preparation, structure, and photoelectric property of single crystal films of CdS, CdS-CdSe, and CdSe

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy. v. 2, no. 12, 1966, 2110-2115

TOPIC TAGS: thin film, cadmium sulfide, cadmium selenide, single crystal film, photosensitive film

ABSTRACT: A study was made of vacuum deposition of hexagonal, single-crystal films of CdS, CdS-CdSe, and CdSe on heated substrates of mica or of single crystalline silver films on mica and of the effect of subsequent heat-treatment on the structure and photoelectric property of these films. The literature data are available only on polycrystalline films of cadmium chalcogenides which are presently used in thin film diodes, phototransistors, photoresistors, photovoltaic cells, etc. Electron diffraction patterns have shown that single phase hexagonal films of CdS and CdSe and triple CdS-CdSe films were deposited on the (0001) face of mica substrate at 270—450C under given conditions. Single crystal CdS and CdSe films of hexagonal or mixed structure were formed on a single-crystal silver film substrate which was

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ACC NR: AP7002397

heated at ·.C —300C. Highly photosensitive layers, with the dark resistance to resistance on illumination ratio 3-5 orders of magnitude higher than in the earlier described CdS and CdSe films, were obtained by thermal photostimulation of single-crystal CdS and CdSe and triple CdS-CdSe films. Photosensitive (CdS_xCdSe_{1-x}): Cu, Cl films, with a low time constant, were obtained by a new method of heat treatment of CdS films under the preliminarily activated $(Cd_xSe_yO_z)$:Cu, Cl layer. Highly sensitive photoresistors, with maximum of photoelectric current intensity at various wave lengths in the 500—700 nm range, may be obtained on the basis of the above-indicated films. Orig. art. has: 2 tables and 6 figures.

SUB CODE: 20/ SUBM DATE: 13Dec65/ ORIG REF: 009/ OTH REF: 014
ATD PRESS/ 5111

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.A.

Effect of purified antigen on the receptors of the glomus caroticum. Sbor. nauch. trud. Rost. gos. med. inst. no.22:151-154 '63. (MIRA 18:7)

1. Iz kafedry patologicheskoy fiziologii Rostovskogo gosudarstvennogo meditsinskogo instituta (zav. - prof. A.I.Gordiyenko).

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1786
AUTHOR ESTULIN,I.V., KALINKIN,L.F., MELIORANSKIJ,A.S.
TITLE The Gamma Quanta emitted by the Nuclei of J, Rh amd Co on the occasion of the Capture of Thermal Neutrons.
PERIODICAL Zurn.eksp.i teor.fis,31,fasc.5, 886-887 (1956)
Issued: 1 / 1957

The present work determines the energies and absolute intensities of the γ-quanta mentioned in the title with from 50 to 600 keV. For this purpose a luminescence spectrometer with a cylinder-shaped NAJ(Tl)-crystal (height 9 mm, diameter 28 mm) was used. As a source of thermal neutrons a physical test reactor with heavy water was used. From the horizontal channel in the shield of the reactor a well-collimated neutron bundle emerged, and in the center of the bundle the target made of the substance to be investigated was located. Under the target there was a NaJ(Tl)-crystal with a photoelectric amplifier. On the occasion of the measuring of the γ-rays produced on the occasion of neutron capture, the measuring results obtained in the case of an opened bundle of thermal neutrons (N_o) were compared with those obtained when the output of the neutron collimator was covered by means of a lid of B_4C(N_1). The effect (N) produced by the thermal neutrons on the target is equal to the difference of these two results: $N = N_o - N_1$. In the spectra of the investigated targets the photopeaks of soft γ-quanta (emitted by the nuclei on the occasion of the capture of thermal neutrons) rise above the background of the momenta originating from harder γ-gamma quanta.

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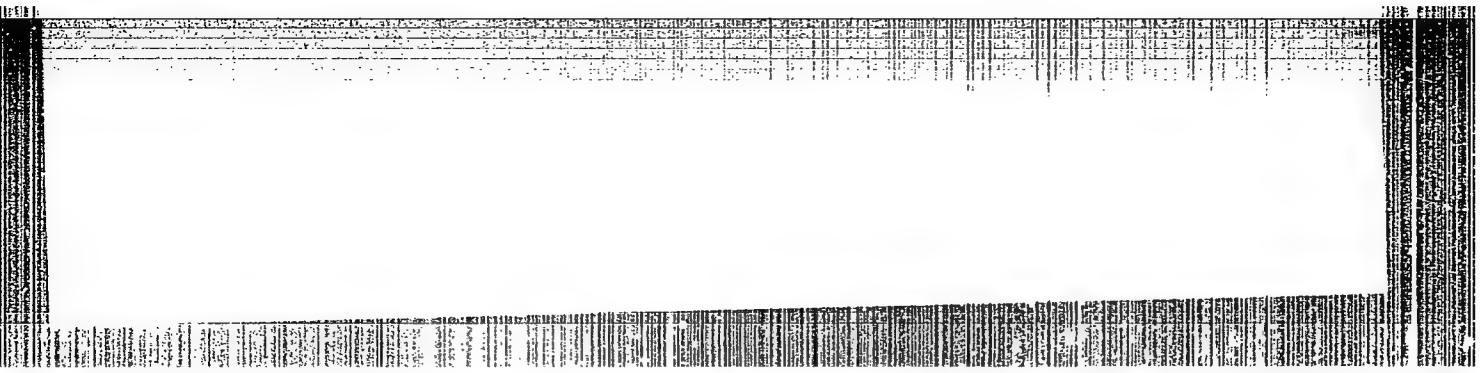

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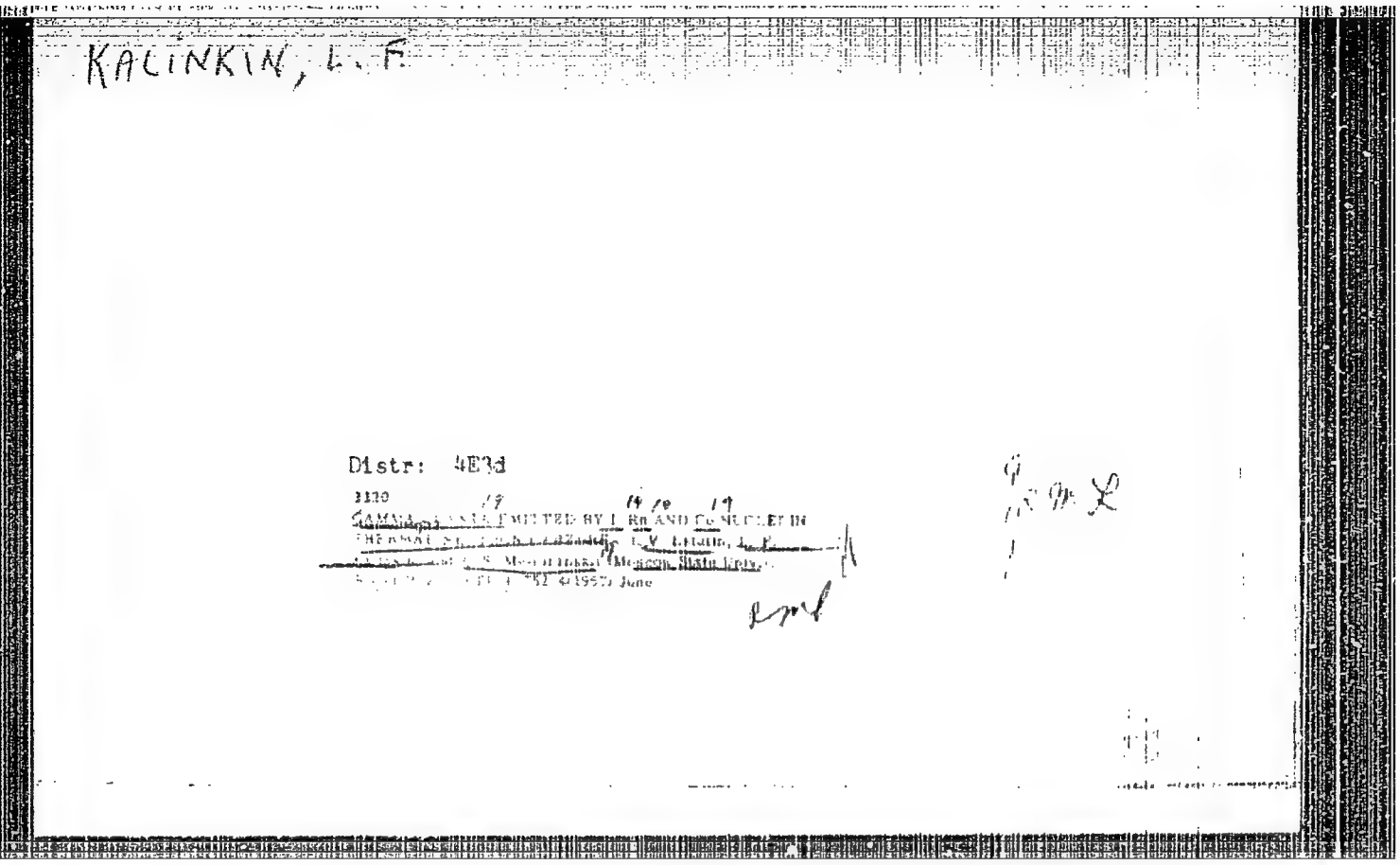

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F.

AUTHOR ESTULIN, I.V., KALINKIN, L.F., MELIORANSKIY, A.S. 56-5-7/55

TITLE The Soft γ-Radiation Emitted By Nuclei at the Capturing of Thermal Neutrons.
(Myagkoye γ-izlucheniye, ispuskayemoye yadrami pri zakhvate teplovykh neytronov.-Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 5, pp 979-992 (USSR)

ABSTRACT The paper under review describes the measurement of the energy and of the absolute yields of the γ-quanta (in the energy interval from 50 K keV to 500 keV) which are emitted by nuclei at the capturing of thermal neutrons. These measurements were conducted by means of a monocrystal luminescence spectrometer.

The first chapter of the paper under review deals with the geometrical conditions of the experiment and of the luminescence spectrometer. In this experiment, a physical experimental reactor with heavy water was used as source for the neutrons. The collimated bundle of the thermal neutrons, brought out of the protections of the reactor, had an intensity of $\sim 10^7$ neutrons/cm^2 sec. In the luminescence spectrometer a photoelectric amplifier C with a cylindrical NaJ(Tl) crystal was used.

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56-5-7/55

The Soft γ-Radiation Emitted By Nuclei at the Capturing of Thermal Neutrons.

discussed in detail the results of the measurements with regard to the following nuclei: rhodium, iodine, samarium, gold, mercury. The results of the measurements are compiled in a chart at the end of the paper under review.
(12 reproductions and 2 charts)

ASSOCIATION: Moscow State University.
PRESENTED BY: -
SUBMITTED: 26.12. 1956
AVAILABLE: Library of Congress.

CARD 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

γ-Radiation of the Radiation Capture of Thermal Neutrons 507/56-35-3-6/61
by Mo^{95}, Ag^{107}, Te^{123} and Cs^{133}

channel analyzer operated at a counting rate of $\sim 10^5$ pulses /sec. Investigations were carried out of (n,γ) reactions on Ag,Sn,Te,Cs,W,Tl (X-ray-K-emission at the corresponding energies of 22,25,27, 31, 59,72 keV), and further Te^{123} (159 keV), Hg^{203} (279 keV), Cr^{51}(323 keV), the γ-radiation of the reaction $B^{10}(n,\alpha)Li^{7}$ (480 keV), Cs^{137}(662 keV), Nb^{95}(762 keV) and Zn^{65} (γ-energy: 1120 keV). The resolving power η of the spectroscope in the range E_γ=279-1120 keV obeys the formula $\eta=(240/\sqrt{E_\gamma})+ 0{,}2$ [%]. Figure 1, in a diagram for 2 NaJ-crystals of different size, shows the dependence of spectrometer efficiency at the photopeaks of E_γ in the energy interval investigated. In conclusion, the results obtained by measurements are discussed separately for the nuclei investigated of molybdenum, silver, tellurium, and cesium. In a table the values obtained are shown clearly and partly compared with the results obtained by other authors (Refs 10, 11,15).

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

γ-Radiation of the Radiation Capture of Thermal Neutrons SOV/56-35-3-6/
by Mo^{95}, Ag^{107}, Te^{123} and Cs^{133}

The energy E_γ [keV] of the respective element is in each case compared with the number [%] of the γ-quanta emitted per captured neutron. The following are some of the results obtained:
Mo^{96}: E_γ=770± 10:(91± 14)%; 840± 10:(43± 8)%; Ag^{108}: 22± 2: (X-ray emission)(10± 6)%; 117± 3:(9± 2)%; Te^{124}: 605± 10:(58± 9)%; 725± 10:(17± 4)%; Cs^{184}: 120± 3:(20± 3)%; 184± 3:(9± 2)%. Finally, the authors thank I.S.Shapiro for the interest he displayed in the work and for discussing results; they further express their gratitude to S.A.Gavrilov, A.P.Shilov, and his collaborators, attendants of the physical reactor, as well as to Ya.A.Kleyman, A.M.Safronov, and V.F.Tsarakayev for assisting in carrying out the experiments.There are 6 figures, 1 table, and 15 references, 8 of which are Soviet.

Card 3/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

γ-Radiation of the Radiation Capture of Thermal Neutrons SOV/56-35-3-4/61
by Mo^{95}, Ag^{107}, Te^{123} and Cs^{133}

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU
(Scientific Research Institute for Nuclear Physics,
Moscow State University)

SUBMITTED: April 5, 1958

Card 4/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F., Cand Phys Math Sci -- (diss) "Soft gamma-radiation emitted by nuclei in radiation capture of thermal neutrons." Mos, 1959, 11 pp (Mos Order of Lenin and Order of Labor Red Banner State Univ im M.V. Lomonosov. Sci Res Inst of Nuclear Physics) 150 copies. Bibliography at end of text (10 titles) (KL, 34-59, 110)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

21(1), 21(7)

AUTHORS: Kalinkin, L. F., Melioranskiy, A. S., SOV/56-36-5-75/76
Estulin, I. V.

TITLE: Some γ-Transitions in J^{128} and in Neodymium Isotopes (Nekotoryye γ-perekhody v J^{128} i izotopakh neodima)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1613-1614 (USSR)

ABSTRACT: By means of a singlecrystal spectrometer (NaJ(Tl)) the authors of the present "Letter to the Editor" investigated the γ-radiation occurring during the radiation capture of thermal neutrons in iodine and neodymium isotopes. A report concerning the measuring method has already been published (Refs 1, 2). Results: J^{128} (investigations within the range of 20 - 400 kev): 28 ± 2 kev line, intensity $(23\pm6)\%$, a characteristic K-emission caused by internal γ-conversion on electrons of the K-shell. 135 ± 3 kev line, intensity $(20\pm4)\%$, very probably an E2-transition. 158 ± 4 kev line, $(7.5\pm 1.5)\%$, very probably a M2-transition. The high intensities (the data given in % refer to the captured

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neutron) indicate that, in the case of the transitions, such occurring among lower excited levels must be concerned.

Neodymium isotopes: Investigations on Nd_2O_3-target; identification of γ-lines by means of neodymium target (natural mixture of isotopes with impurities of other rare earths with large neutron capture cross section), comparison between results obtained and those of other publications, e. g. by Sklyarevskiy et al. (Ref 6).

The following was found:

Line [kev]	γ-intensity (natural mixture)	identification (of γ-line)	γ-intensity (isotope)
182±3	2.1±0.4		
330±10	23±4	Sm^{150}	67
445±10	25±5	Sm^{150}	40
		Nd^{146}	>40
610±10	20±4	Sm^{150}	16
		Nd^{146}	~100

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Some γ-Transitions in J^{128} and in Neodymium Isotopes SOV/56-36-5-75/76

695±10	63±10	Nd^{144}	85±13
840±10	15±3	Nd^{144}	20±4

There follows a number of further data concerning the lines found, as e. g. that the 695- and the 445 kev line originate from a transition from the first excited to the ground state of Nd^{144} and Nd^{146} respectively, and that for the 840- and the 610 kev line the energy ratio between these states and the first levels amounts to $E_2/E_1 = 2.2 \div 2.4$, which is characteristic of the oscillation levels of spherical even-even nuclei. The data were obtained from a number of publications referred to. There are 1 table and 8 references, 6 of which are Soviet.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: March 15, 1959

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F.

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S/120/60/000/03/012/055
E032/E514

24.6200

AUTHORS: Melioranskiy, A.S., Estulin, I.V. and Kalinkin, L.F.

TITLE: Stability of Spectrometric Photomultipliers at High Counting Rates

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3, pp 45-47

ABSTRACT: Fast and non-overloading single channel analyser and amplifier (Melioranskiy and Ostanevich, Ref 2) were used to study the overloading properties of Soviet spectrometric photomultipliers FEU-29, FEU-5 and FEU-11. A sodium iodide crystal was used as the scintillator and the dead time of the electronics was 3 μsec. The determination of the change in the characteristics of the spectrometer (stability, resolving power, calibration, etc.) was carried out under two conditions. In the first (linear) case the amplitude of pulses due to gamma rays from Co^{60}, Zn^{65} and Cs^{137} was kept within the linear calibration. The spectrometer was then overloaded by increasing the counting rate. In the second (nonlinear) case a determination was made of the spectrometer

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

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E032/E514

Stability of Spectrometric Photomultipliers at High Counting Rates

characteristics for the Ba K-radiation photopeak emitted by Cs^{137}. The intensity of this photopeak was ten times smaller than the intensity of the 0.66 MeV line and the pulses due to this line were well beyond the linear characteristics of the instrument. In this way the lower energy pulses were looked at while the spectrometer was being amplitude overloaded by the 0.661 MeV line. The results obtained are shown in Fig 1. The continuous curves represent the energy calibration , and the dotted curves the resolution. Curves are marked as follows: FEU-29: 1,2 - linear conditions; 3,4 - nonlinear conditions; FEU-S: 5,6 - nonlinear conditions; FEU-11: 7,8 - nonlinear conditions. The vertical axis is in relative units and the horizontal axis is in pulses/sec x 10^3. The best results were obtained for the FEU-11 photomultiplier which is of the venetian blind type. This photomultiplier will tolerate a maximum
Card 2/3 counting rate of 10^5 pulses/sec.

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S/120/60/000/03/012/055
E032/E514

Stability of Spectrometric Photomultipliers at High Counting Rates

There are 1 figure and 3 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific-Research Institute for Nuclear Physics of the Moscow State University)

SUBMITTED: April 16, 1959

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

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S/056/60/038/03/12/033
B006/B014

24.6600

AUTHORS: Melioranskiy, A. S., Estulin, I. V., Kalinkin, L. F., Kudinov, B. S.

TITLE: Excited States of Cs^{134}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 3, pp. 758-764

TEXT: In the article under review, the authors used a coincidence-luminescence spectrometer to study the cascade γ-transitions induced in cesium nuclei by thermal neutron capture. Fig. 1 shows a block diagram of the spectrometer, which uses photomultipliers of the types FEU-13 and FEU-11 with NaI(Tl) crystals. The neutrons with which the 20 mm thick CsF target (0.25 g) was bombarded stemmed from the TVR-2 reactor of the AS USSR. Fig. 4 represents the pulse spectra (number of pulses per minute as a function of energy) and the energy distributions of the number of coincidences per minute. Besides the γ-peaks, the coincidence spectra exhibited also a peak with (31 ± 2) kev, which corresponds to an X-ray emission of the Cs atom. This emission is ascribed primarily to an internal conversion of the γ-quanta on the K-shell

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and partly to the photoeffect of the γ-quanta in eigenabsorption in the target. To verify the measured internal conversion coefficient α_K a control experiment with Cs^{134m} ($T_{1/2}$ = 3.1 hours) was made. A comparison of the peak areas at 127 and 31 kev showed that $\alpha_K = 2.8 \pm 0.3$, which is fairly consistent with the theoretical value 2.82 obtained for an E3 transition. For the purpose of studying the cascade γ-transitions four series of experiments were carried out, the results of which are listed in Table 1. The following lines were found in addition to that with 31 ± 2 kev mentioned above: 63 ± 2, 75 ± 5, 120 ± 3, 138 ± 4, 184 ± 4, 195 ± 260, 215 ± 4, 258 ± 4, and 310 ± 5. These results are discussed in great detail, and some data concerning the probable polarities are given. The 75-kev transition, for instance, may be a transition of the type E2 or M1+E2. Also, the intensities of the individual transitions are indicated. The 63-kev and 120-kev transitions are compared with theory in Table 2. Fig. 4 illustrates the nuclear level scheme, which is fully explained. The following spins and parities of the levels are given: 0 (4^+), 63 kev (2^+), 137 kev (8^-), 184 kev (3^+), 258 kev (4^+), and 320 kev (3^+, 4^+). There are 4 figures, 2 tables, and 11 references, 6 of which are Soviet.

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

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Excited States of Cs^{134}

S/056/60/038/03/12/033
B006/B014

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: September 19, 1959

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L. F.; ESTULIN, I. V.; MELNORANSKIY, A. S.

"Excited States of Rh^{104}."

"Gamma Radiations in the Reaction $Ag^{109}(n,\gamma)Ag^{110}$."

reports submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

MGU (Moscow State Univ)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F.; MELIORANSKIY, A.S.; ESTULIN, I.V.

Remarks on excited energy states of Ho^{166} and Cs^{134} odd-odd nuclei. Izv. AN SSSR. Ser. fiz. 25 no.9:1124-1126 '61. (MIRA 14:8)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(Holmium--Isotopes)
(Cesium--Isotopes)
(Nuclear reactions)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

MELIORANSKIY, A.S.; ESTULIN, I.V.; KALINKIN, L.F.

Studying the lower excited states of Mn^{56} and Ho^{166} by measuring the coincindences of cascade γ-quanta. Zhur. eksp. i teor. fiz. 40 no.1:64-71 Ja '61. (MIRA 14:6)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Manganese--Spectra) (Holmium--Spectra) (Nuclei, Atomic)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

S/056/62/042/005/002/050
B125/B108

AUTHORS: Kalinkin, L. F., Melioranskiy, A. S., Estulin, I. V.

TITLE: Cascade γ-quanta in the reaction $Rh^{103}(n,\gamma)Rh^{104}$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 5, 1962, 1149 - 1157

TEXT: A two-crystal luminescence $\gamma\gamma$-coincidence spectrometer was used to study γ-quantum cascades in the reaction $Rh^{103}(n,\gamma)Rh^{104}$ with thermal neutrons. Coarse rhodium wrapped in aluminum foil served as a target. Results are shown in Table 1. Fig. 1 shows typical spectra of γ-quanta from $Rh^{103}(n,\gamma)Rh^{104}$. The multipole types were determined for the following transitions: 35 kev(M1+E2), 51 kev(M1), 88 kev(M1+E2 or E2), 98 kev(M1), 99 kev(E2), 133 kev(M1 or E2), 135 kev (M1 or E2). The Rh^{104} coincidences detected are indicative of the existence of two new levels with the excitation energies 184 and 272 kev with transitions to and from these levels. Direct transitions from the initial state (i.e. when a neutron is captured) go to levels with energies of 440, 580, 760 and 900 kev arise. The chain of transitions detected in the coincidences

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Cascade γ-quanta in the...

with 98 kev γ-quanta is related to the ground state and not to the isomeric state. The transition belonging to the newly discovered peak with 230 kev does not conform with the other levels. For this reason a 500 kev level is introduced conditionally. A 35 kev γ-line was detected in the spectral regions V and VI which is indicative of a ∿183 kev transition. Direct transitions of comparable intensities must be of the type E1. The interpretation of the excited levels of Rh^{104} is difficult because of the large number of neutrons and protons in vacant nuclear shells. There are 2 figures and 2 tables. The most important English-language reference is: Nuclear Data Sheets, National Academy of Sciences-National Research Council 1960 (US Government Printing Office, Washington D.C.).

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: November 5, 1961

Card 2/5

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

S/056/62/042/005/002/050
B125/B108

Table 1

E_γ, keV	1 Интенсивность на захваченный нейтрон n_γ, %	2 Отчетливое проявление в совпадениях с областями спектра (см. рис. 1)	3 γ-кванты, проявляющиеся в совпадениях с данной линией (E_γ, keV)
20±2	36±6*	I — VIII	51, 88, 98, 133, ~ 183
35±3	~0,5**	V, VI	
51±2	11±1,5*	I, IV — VIII	133, 168, 220, 340, 450—600
88±3	~1,3**	I, V, VI	
98±3	13±2	I, III — VIII	98, 133, 176, 210, (340)
99±3	3±1** } 16±2*		
133±3	5,5±1,3**	I — III, VIII, VII	51, 98, (140, 160—190, 220)
135±3	3±1** } 9±1,5*		
140±4	~0,5**	II, VII	51, 88, (~135, 176)
168±5	4,5±5*,**	III, V	98
176±7	2±0,5**	I, V, VI, VIII	35, 88, (~135)
183±7	~3**		
184±5	13 } 16±2*		
205±7	2,5±1*,**	II, III, V — VIII	51, 98, 140, (168, 184), ~225
220±5	6,5±1,5**		
230±5	1±0,4** } 10±2*		
(250±10)	~2*	V, VIII	
275±5	3±1*,**	VIII	
320±7	7±1,5*		
(350±10)	~4*	VIII	
440±10	8±2*		

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

S/056/62/043/004/035/061
B108/B102

AUTHORS: Estulin, I. V., Kalinkin, L. F., Melioranskiy, A. S.

TITLE: Measurement of γγ-coincidences in the reaction $Ag^{107}(n,\gamma)Ag^{108}$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1378-1384

TEXT: γγ-coincidences were measured with a two-crystal (NaI(Tl)) spectrometer according to a method described earlier (A. S. Melioranskiy et al., ZhETF, 38, 758, 1960; 40, 64, 1961; L. F. Kalinkin et al., ZhETF, 42, 1140, 1962). The energies and intensities of the gamma lines observed by the authors are given in Table 2. The measurements of coincidences were used to determine the energy level diagram of Ag^{108} (Fig. 3). There are 3 figures and 2 tables.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Measurement of γγ-coincidences...

PRESENTED: April 21, 1962 (initially)
July 13, 1962 (after revision)

Table 2. Legend: second and fourth column show intensities n_γ, % per captured neutron. Asterisk indicates gamma line intensities determined with single crystal spectrometer.

Card 2/A2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, L.F.; MELIORANSKIY, A.S.; ESTULIN, I.V.

Cascade γ-quanta in the reaction $Rh^{103}(n,\gamma)Rh^{104}$. Zhur. eksp. i teor. fiz. 42 no.5:1149-1157 My '62. (MIRA 15:9)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Quantum theory) (Nuclear reactions)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ESTULIN, I.V.; KALINKIN, L.F.; MELIORANSKIY, A.S.

Measurement of $\gamma\gamma$-coincidences in the reaction $Ag^{107}(n,\gamma)Ag^{108}$. Zhur. eksp. i teor. fiz. 43 no.4:1378-1384 O '62. (MIRA 15:11)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Gamma-ray spectrometry)
(Nuclear reactions) (Silver—Isotopes)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ESTULIN, I.V.; KALINKIN, L.F.; MELIORANSKIY, A.S.

Decay of Rh^{104*} ($T_{1/2}$ = 4.4 min.). Izv. AN SSSR. Ser. fiz. 28 no.1:93-97 Ja '64. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

(BR)

ACCESSION NR: AP4024040 S/0048/64/028/002/0227/0228

AUTHOR: Kalinkin, L.F.; Estulin, I.V.; Melioranskiy, A.S.

TITLE: Gamma radiation emitted in the $Ag^{109}(n,\gamma)Ag^{110}$ reaction /Report, Fourteenth Annual Conference on Nuclear Spectroscopy held in Tbilisi 14 to 22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.2, 1964, 227-228

TOPIC TAGS: neutron capture γ-ray, neutron capture reaction Ag^{109}, Ag^{110}

ABSTRACT: Hitherto there has been only one study of the neutron capture γ-radiation from Ag^{109} (V.V.Sklyarevskiy, E.P.Stepanov and B.A.Obinyakov, Atomnaya energiya 5, 454,1958). The purpose of the present work was to check and amplify the earlier data. In the present work the γ-radiation from the $Ag^{109}(n,\gamma)Ag^{110}$ reaction was recorded by means of a scintillation spectrometer in which there were used 10, 20 and 40 mm thick NaI(Tl) crystals coupled to a louver type photomultiplier. The target was metallic silver enriched to 98.8% Ag^{109}. The silver in the amount of 45.7 mg was deposited electrolytically onto a thin aluminum backing in the form of a 20 mm diameter disc. The spectra were recorded using different Pb + Sn + Zn absorbers; one typical singles spectrum is reproduced. The 16 γ-lines (including 22 keV K x-

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACCESSION NR: AP4024040

rays) observed in the single crystal measurement are tabulated. Analysis of the results of γ-γ coincidence measurements did not reveal any γ-cascades including gammas with the intensities indicated in the table. Hence apparently most of the tabulated lines are actually groups of lines with close energies not resolved by the scintillation spectrometer. The present data are not sufficient for constructing a level diagram for Ag^{110}. Orig.art.has; 1 figure and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im.M.V.Lomonosova (Scientific-Research Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 23Sep63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: NS NR REF SOV: 010 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

MELIORANSKIY, A.S.; KALINKIN, L.F.; ESTULIN, I.V.

Excited states of Rh^{104}. Izv. AN SSSR. Ser. fiz. 28 no.7: 1110-1117 Jl '64 (MIRA 17:8)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACCESSION NR: AP4019251 S/0056/64/046/002/0807/0809

AUTHORS: Estulin, I. V.; Kalinkin, L. F.; Melioranskiy, A. S.

TITLE: Energy levels of the Rh-104 nucleus

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 807-809

TOPIC TAGS: rhodium-104, level scheme, transition between levels, $\gamma\gamma$ coincidence, isomer decay, γ line intensity, Ritz combination rule

ABSTRACT: Additional data on the energy levels of Rh^{104} were obtained from recent published results on γ rays from Rh^{103} bombarded by neutrons and on the decay of the Rh^{104m} isomer. The level scheme and the transitions between levels were obtained by combined analysis of the results of the quantitative processing of measurements of coincidences between γ rays in defined energy regions (scintillation spectrometers) and the values of the γ-line energies in these regions (diffraction spectrometers). The γ-line intensities were

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACCESSION NR: AP4019251

used to relate the γ transitions detected by using the different methods. The Ritz combination rule was used as a necessary condition. A more complete report is being prepared for publication. It is shown that in spite of the complexity of the level system, brought about by the pn interaction, many levels can be interpreted within the limits of the existing theories on the nature of the excited states and deformed nuclei.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Nuclear Physics Institute, Moscow State University)

SUBMITTED: 17Jul63 DATE ACQ: 27Mar64 ENCL: 01

SUB CODE: PH NO REF SOV: 005 OTHER: 008

Card 2/3

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACC NR: AP7000520 SOURCE CODE: UR/0048/66/030/011/1765/1767

AUTHOR: Grigorov, N. L.; Kalinkin, L. F.; Melioranskiy, A. S.; Nesterov, V. Ye.; Pryakhin, Ye. A.; Savenko, I. A.; Estulin, I. V.

ORG: none

TITLE: A study of high-energy γ-quanta at the upper limits of the atmosphere [Paper presented at the All-Union Conference on Physics of Cosmic Rays held in Moscow from 15 to 20 November 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 11, 1966, 1765-1767

TOPIC TAGS: gamma radiation, gamma counter, gamma detection, meteorologic satellite, cosmic ray telescope, scintillator, Cerenkov counter

ABSTRACT: The satellites Proton-1 and Proton-2 carried equipment designed to detect gamma rays with energies above 50 Mev and to measure their spectrum. The equipment (see Fig. 1) comprised a telescope formed by a γ-quanta converter consisting of a sandwiched plastic scintillator, and a Cherenkov counter with a radiator made from lead-containing glass which detected the energy and direction of gamma rays. The telescope detectors were placed inside a cover made of a scintillator plastic which protected the telescope from the noise of charged particles in selecting of anticoincidences. In addition to gamma radiation, the equipment was capable of registering pulses from other

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ACC NR: AP7000520

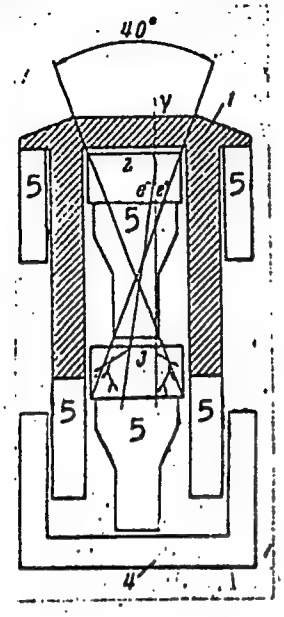

Fig. 1. Block diagram of the equipment

1 - Plastic scintillator; 2 - sandwich crystal; 3 - lead-containing glass; 4 - electronic circuits; 5 - photomultipliers.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

ACC NR: AP7000520

electrically neutral particles (neutrons for example), as well as the flow of charged particles with energies that exceeded the luminescence threshold of the Cherenkov counter radiator. The flow of γ-quanta with energies exceeding 5 Mev was approximately 2 x 10^{-3} $cm^{-2} \times sterad^{-1} \times sec^{-1}$; this value is in good agreement with the values obtained by other researchers. Orig. art. has: 3 figures. [WA-75] [IV]

SUB CODE: 04, 18/20/ SUBM DATE: none/ ORIG REF: 004/
OTH REF: 006

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

PARIISS, G.N.; KAZANSKIY, N.I.; KURSANOV, D.N.

Formation of molecular hydrogen from a proton and of a hydride-liable hydrogen from the C-H bond. Dokl. AN SSSR 165 no.5:1093-1094 D '65. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kursanov). Submitted June 14, 1965.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Malinkin, N.

TSAPKIN, N.; KALINKIN, N.; NIKIFOROV, B.; BURMISTROV, D.V., redaktor; NADEZHDINA, A., redaktor; DENISOVA, O., tekhnicheskiy redaktor

[Taxes and duties from collective farms and private persons] Nalogi i sbory s kolkhozov i naseleniia. Pod red. D.V.Burmistrova. Moskva, Gosfinizdat, 1954. 224 p. [Microfilm] (MLRA 7:10)
(Taxation)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, N.B.; ROMANOVSKIY, V.I.; SIDOROV, I.S.

Cutting-tool holder with a rebound mechanism. Mashinostroitel' no.6:32 Je '64. (MIRA 17:8)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, N. B.; ROMANOVSKIY, V. I.; SIDOROV, I. S.

Setting-up device for automatic multicut lathes. Mashinostroitel' no.10:14-15 O '62. (MIRA 15:10)

(Lathes)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, N.B.; ROMANOVSKIY, V.I.; SIDOROV, I.S.

Special adjustment of the IA730 semiautomatic multicut lathe for machining sleeves. Avt. prom. 29 no.7:36 Jl '63. (MIRA 16:8)

1. Novosibirskiy stankostroitel'nyy zavod imeni XVI parts"yezda. (Lathes)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

CHERNOV, I.S., inzhener-podpolkovnik; KALINKIN, P.V., mayor zapasa

Automatic control of electric power supply apparatus. Vest. protivovozd.obor. no.12:54-56 D '61. (MIRA 15:3)
(Radar, Military) (Electric power supply to apparatus)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

06213
5(1) SOV/64-59-6-5/28

AUTHORS: Moshkin, P. A., Lutkova, V. I., Pertsov, L. D., Kalinkin, S. F.

TITLE: Method for the Separation of Tetrahydrofuran From Reaction Gases

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 6, pp 484 - 486 (USSR)

ABSTRACT: A new method has been developed by NIIPM, by which furan is not separated from the gas mixture after the decarbonylation of furfurole but in which the whole gas mixture is carried on to hydrogenation (Ref 19). The latter takes place on a nickel catalyst, whereupon the gas is cooled to room temperature. In this process part of the tetrahydrofuran is separated. The rest of the tetrahydrofuran remains in the waste gases from which CO_2 is removed; the waste gases are introduced into the hydrogenation cycle and thus act as a kind of carrier gas saturated with tetrahydrofuran (at room temperature). The decarbonylation of furfurole (Fig 1: scheme) is carried out by the method described in reference 20. The catalyst was obtained from a nickel-aluminum alloy (1 : 1) by leaching out 40% of the aluminum in an appropriate column. The hydrogenation of furan (in the gas mixture) took place in a tube reactor (Fig 2: scheme

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Method for the Separation of Tetrahydrofuran From Reaction Gases

of the unit) at a temperature of 110-130° and an excess pressure of 1.5 - 2 m water column. After the separation of tetrahydrofuran the CO_2-containing gas was carried through a potash solution by means of an RMK-2 gas blower and thus CO_2 was removed. The boiling temperature of the rectified tetrahydrofuran was 64-66°, density D_{20}^{o} = 0.888, and the refractive index n_D^{20} = 1.4044. There are 2 figures and 20 references, 7 of which are Soviet.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

5.3610

75693
SOV/80-32-10-42/51

AUTHORS: Kost, A. N., Pertsov, L. D., Yudin, L. G., Kalinkin, S. F.

TITLE: Brief Communications. Catalytic Hydrogenation of Quinoline

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2349-2351 (USSR)

ABSTRACT: Nickel on chromic oxide is used as an industrial catalyst for the hydrogenation of quinoline. The above catalyst is very effective. The hydrogenation already starts at 90° and 80 atm pressure. Two attempts were made to hydrogenate quinoline: 1) Hydrogen was introduced into the reactor at 50 atm pressure. The reaction was carried out at 110-115° and 100 atm pressure for 10 hr. 101% of catalyzate was obtained, calculated on the starting material. After vacuum distillation 7.8% of cis- and trans-decalin and 85.3% of 1,2,3,4-tetralin were obtained.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Brief Communications. Catalytic Hydrogenation of Quinoline

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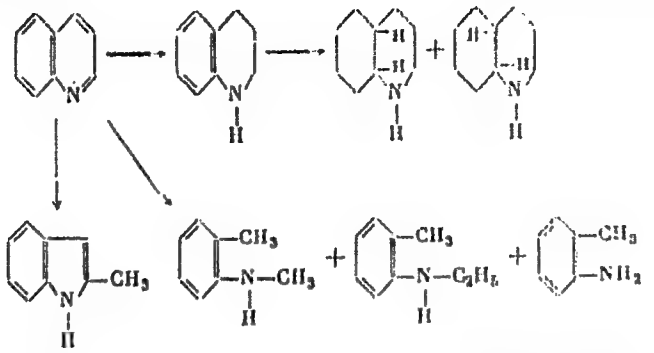
SOV/80-32-10-42/51



2) The reaction was carried out at 105-110° and at 100 atm pressure. 102.5% of catalyzate was obtained, calculated on the starting material. After distillation 96.4% of 1,2,3,4-tetralin and 2% of decalin were obtained. The residue (about 1%) was a tar-like product. There are 16 references, 7 Soviet, 4 German, 3 U.S., 1 Japanese, 1 Italian. The 3 U.S. references are: Travis, B., Morton, F., Jones, H., Robinson, J., J. Econ. Entomol., 42, 686 (1949); Gouck, H., Gilbert, J., ibid, 48, 499 (1955); Adkins, H.,

Card 2/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

Brief Communications. Catalytic Hydrogenation of Quinoline

75693
SOV/80-32-10-42/51

Billica, H., J. Am. Chem. Soc., 70, 695 (1948).

SUBMITTED: June 9, 1958

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

MOSHKIN, P.A.; LUTKOVA, V.I.; RAZUMOVA, N.N.; PERTSOV, L.D.; KALINKIN, S.F.

Production of the disodium 3,6-endoxohexahydrophtalate (endothal). Khim.prom. no.4:237-238 Ap '61. (MIRA 14:4)

(Oxabicycloheptanedicarboxylic acid)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, Vasiliy Alekseyevich; SEMLEZNEV, N.G., red.; PULIN, L.I., tekhn.red.

[Victory is attained by the people] Pobedu dobyvaiut liudi. Tula, Tul'skoe knizhnoe izd-vo, 1960. 15 p. (MIRA 14:2)

1. Sekretar' Staroshilovskogo raykoma KPSS Ryazanskoy oblasti (for Kalinkin).

(Sugar beets)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KLYUYEV, G.M., kand.tekhn.nauk; YUNITSKAYA, Ye.I., starshiy inzh.; RYAKOVA, E.Ya.; Prinimali uchastiye: PETROV, A.M.,; SHISHKIN, A.F.; KNAUS, O.M.; RUSAKOVA, R.A.; STEPANOVA, L.G.; KALINKIN, V.F.; GOPKALOVA, N.K.; SACHKOV, V.F.; FROLOV, M.F.; LUKASHOVA, T.T.; SAVKIN, P.S.

Grain-size distribution in the material produced by crushing rock. Sbor. trud. NIIZHelezobetona no.3:69-90 '60. (MIRA 15:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut zhelezobetonnykh izdelii, stroitel'nykh i nerudnykh materialov (for Petrov, Shishkin, Knaus, Rusakova, Stepanova, Kalinkin, Gopkalova, Sachkov, Frolov, Lukashova, Savkin).

(Stone, Crushed)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

MESHCHERYAKOV, I.T., gornyy inzh.; KALINKIN, V.F., gornyy inzh.

Using igdanite for blasting hard rock. Vzryv. delo no.54/11: 299-303 '64. (MIRA 17:9)

1. Proyektno-tekhnologicheskoye byuro Nauchno-issledovatel'skogo instituta zhelezobetonnykh izdeliy, stroitel'nykh i nerudnykh materialov.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, Vladimir Sergeyevich; FAYLER, Georgiy Oskarovich; SINAYSKIY, M.M., red.; SHIKIN, S.T., tekhn.red.; BORUNOV, N.I., tekhn.red.

[Hoisting electromagnets] Gruzopod"emnye elektromagnity. Moskva, Gos.energ.izd-vo, 1960. 31 p. (MIRA 14:1)
(Hoisting machinery) (Electromagnets)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKIN, Vladimir Sergeyevich; FEYLER, Georgiy Oskarovich; TATTS, A.A., red.; VAGIN, A.A., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Electromagnets for electric cranes] Pod"emnye elektromagnity. Moskva, Metallurgizdat, 1962. 87 p. (MIRA 16:2)
(Electric cranes) (Electromagnets)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

BELEN'KIY, G.I.; BREYTER, M.Ye.; IVANOV, V.M.; KALINKIN, V.S.; KOZHUSHKEVICH, V.G.; PETRAKOVSKIY, V.M.; RABINOVICH, A.A.; RUBINSKIY, I.A.; SINAYSKIY, M.M.; FEYLER, G.O.; KHOROSHILKIN, L.L.; KOMAR, M.A., red.; BUL'DYAYEV, N.A., tekhn. red.

[Electrical equipment of cranes] Elektricheskoe oborudovanie kranov. Moskva, Gosenergoizdat, 1963. 399 p. (MIRA 16:12)

1. Kollektiv inzhenerov moskovskogo zavoda "Dinamo" imeni S.M.Kirova (for all exept Komar, Bul'dyayev).
(Cranes, derricks, etc.—Electric equipment)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKINA, A.A.; IVSHINA, Ye.S., akusher Yarskogo rayona UASSR

Intrauterine asphyxia of the fetus. Trudy Izhev.gos.med.inst. 13: 244-247 '51. (MIRA 13:2)

1. Iz kafedry akusherstva i ginekologii Izhevskogo meditsinskogo instituta. Zaveduyushchiy kafedroy - prof., doktor med.nauk N.N. Chukalov. 2. Zaveduyushchiy ginekologicheskim otdeleniyem Izhevskoy respublikanskoy klinicheskoy bol'nitsy (for Kalinkina).
(FETUS, DEATH OF) (ASPHYXIA)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKINA, A.A., Cand Med Sci — (diss) "On the problem of ~~treating~~ untreatment of patients with purulent, ~~sack-like~~ sacculated formations of uterine appendages (pyosalpin[redacted], pyo-ovarium)."

Izhevsk, 1959, 11 pp (Min of Health RSFSR. Kazan' Med Inst)

250 copies (KL, 34-59, 117)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

SELIVANOVA, N.M.; ZUBOVA, G.A.; KALINKINA, A.A.; SAZYKINA, T.A.

Physicochemical properties of selenates. Part 15: Behavior of rubidium selenate during heating. Izv.vys.uch.zav.; khim.i khim.tekh. 5 no.4:524-528 '62. (MIRA 15:12)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva, kafedra obshchey i neorganicheskoy khimii.
(Rubidium selenate)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

E

USSR/Human and Animal Viruses. Grippe Virus

Abs Jour : Ref Zhur - Biol., No 4, 1959, No 14616

Author : Kalinkina A.G.
Inst : The Moscow Institute of Vaccines and Sera.
Title : A Study of the Dynamics of Multiplication of the Influenza Virus on Chicken Embryos and the Utilization of the Obtained Results in the Production of Influenza Vaccine.

Orig Pub : Tr. Mosk. n.-i. in-ta vaktsin i syvorotok, 1957, 9, 54-61.

Abstract : Chicken embryos were infected with influenza viruses of the types A' and B in dilutions of 10^{-4} and the dynamics of the multiplication of the viruses were studied by titration on chicken embryos. The accumulation of the virus A' began following a 7 hour latent period of virus B - following an 18 hour period. The titres of the

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USSR/Human and Animal Viruses. Grippe Virus

Abs Jour : Ref Zhur - Biol., No 4, 1959, No 14616

viruses A' and B in the allantoic fluid did not differ significantly from those in the chorio-allantoic membranes. No homo-agglutinins were demonstrated in the chorio-allantoic membranes. The viruses from the allantoic fluid and the chorio-allantoic membranes did not differ in their adaptation to the mucous membrane of the human upper respiratory passages. Vaccines, in the preparation of which allantoic fluid as well as chorio-allantoic membranes were used, did not differ in their characteristics from the usual allantoic vaccines, as a result of which, according to the author, it is possible to use, in the preparation of influenza vaccines the chorioallantoic membranes of infected embryos. -- T.Ya. Luzyanina.

Card : 2/2

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKINA, E.I.

VEDERNIKOV, A.I.; KALINKINA, E.I.; KUDINOV, V.A.; PROKOPOVICH, A.Ye., red.; IVANOVA, N.A., red.izdatel'stva; MATVEYEVA, Ye.N., tekhn.red.

[Reconditioning automatic one-spindle turret lathes; instructions] Modernizatsiia tokarno-revol'vernykh odnoshpindel'nykh avtomatov; rukovodiashchie materialy. Pod red. A.E.Prokopovicha. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 81 p. (MIRA 10:12)

1. Moscow. Eksperimental'nyy nauchno-issledovatel'skii institut metallorezhushchikh stankov.

(Lathes)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

25(2) PHASE I BOOK EXPLOITATION SOV/1689

Gradusov, N.M., L.O. Likht, E.I. Kalinkina, and V.A. Kudinov

Modernizatsiya tokarnykh mnogoshpindel'nykh avtomatov i poluavtomatov; rukovodyashchiye materialy (Modernization of Automatic and Semi-automatic Multi-spindle Lathes; Instructions) Moscow, Mashgiz, 1958. 118 p. 6,500 copies printed.

Sponsoring Agency: Moscow. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov.

Ed.: A. Ye. Prokopovich; Tech. Ed.: A. Ya. Tikhanov; Managing Ed. for Literature on Metalworking and Tool Making: R.D. Beyzel'man.

PURPOSE: This book is intended for production workers who work with machine tools, for plant designers and for processing engineers.

COVERAGE: The authors analyze the existing stock of multispindle automatic and semiautomatic lathes and determine the main outlines

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for their modernization. They describe various devices which broaden the operating potential of automatic lathes and discuss the problem of increasing their rigidity and vibration resistance. No personalities are mentioned. There are 28 references, of which 26 are Soviet, 1 is German and 1 English.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KIVERIN, M.D.; KALINKINA, G.M.; PROKOP'YEVA, M.I.

Method of determination of sugar in skin. Lab.delo 7 no.9:12-15 S '61. (MIRA 14:10)

1. Kafedra biologicheskoy i organicheskoy khimii (zav. - dotsent M.D.Kiverin) Arkhangel'skogo meditsinskogo instituta.
(BLOOD SUGAR) (SKIN)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

NYANKOVSKAYA, R.N.; GUSEVA, A.D.; YAROSLAVTSEVA, I.A.; KALINKINA, I.F.; MAZILOVA, N.V.

Quaternary reciprocal system consisting of fluorides, bromides, and carbonates of sodium and potassium. Zhur.neorg.khim. 8 no.1: 192-201 Ja '63. (MIRA 16:5)

1. Yaroslavskiy gosudarstvennyy pedagogicheskiy institut imeni K.D.Ushinskogo.
(Alkali metals halides) (Alkali metal carbonates)
(Systems (Chemistry))

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

SOV-120-58-1-42/43

AUTHOR: Kalinkina, I. N.

TITLE: The Thermal Capacity of the BF-2 Adhesive at Temperatures between 0.3 - 4.2° K.(Teployemkost' kleya BF-2 pri tempera - turakh 0.3 ÷ 4.2°K)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, p 146 (USSR)

ABSTRACT: In low temperature experiments adhesives are often used in the construction of the various instruments. They are used for electrical insulation, thermal contacts between conductors and the metallic parts of the instruments, and so on. The adhesive BF-2 is widely used and it is of interest to determine its thermal capacity below 4.2°K. In order to do this the adhesive was deposited on a thin copper foil and was then polymerised in the usual way in a thermostat for 1 hour at 120°C. This operation was repeated several times. As a result, a layer of 7.250 gm of the adhesive was deposited on foil 10.431 gm in weight. A manganin heater and two thermometers made of phosphor bronze were wound on the foil and covered with the adhesive. The measurements were carried out using the calorimeter described in Ref.2. The thermal capacity of copper may be described by the formula:

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

The Thermal Capacity of the BF-2 Adhesive at Temperatures between 0.3 - 4.2° K.

$$C = \gamma T + A(T/\Theta)^3 \quad .$$

A comparison was made between the thermal conductivity of copper and the specimen under consideration and a plot was made of C/T as a function of T^2 and this is shown in Fig.1. It was found that the following formula represents the thermal capacity of the polymerised adhesive in the above temperature interval with an accuracy of 3.5% :

$$C = 2.9 \times 10^{-5} T^3 \text{ Joules/gram.deg.}$$

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

SOV-120-58-1-42/43

The Thermal Capacity of the BF-2 Adhesive at Temperatures between 0.3 - 4.2° K.

P. G. Strelkova is thanked for her advice. There is 1 figure and 3 references, 2 of which are Soviet and 1 English.

ASSOCIATION: Institut fizicheskikh problem AN SSSR (Institute of Physical Problems of the Academy of Sciences of the USSR)

SUBMITTED: June 21, 1957.

1. Adhesives--Performance 2. Adhesives--Temperature factors
3. Adhesives--Test methods

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

SOV/56-34-3-12/55

AUTHORS: Kalinkina, I. N. , Strelkov, P. G.

TITLE: The Specific Heat of Bismuth Between 0.3 and 4.4°K (Teployemkost' vismuta mezhdu 0.3 i 4.4°K)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 3, pp. 616 - 621 (USSR)

ABSTRACT: This work shortly discusses the previous works dealing with the same subject. As sample the authors took a monocrystal of spectroscopically pure and additionally several times recrystallized bismuth which was degassed in a quartz ampule at about 600°C in vacuum. The construction of the calorimeter and the methods of the measurements resemble those ones of a previous work (Reference 9). The bismuth sample and a pressed block of ammonium ferric alum (which served as sink in the measurments below 1°K) were suspended by nylon wires in a vacuum container. The heat capacity was measured at temperatures from 0.3 to 4.4°K. In the coordinates C/T and T^2 the experimental points below T = 1.8°K fit on a line and

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The Specific Heat of Bismuth Between 0.3 and 4.4°K

this line determines the coefficient in the formula for the temperature dependence of the heat capacity between 0.3 and 1.8°K; $C = (1.36 \pm 0.1).10^{-5}T + (2.79 \pm 0.09).10^{-4}T^3$ cal.degree^{-1}.g.atom^{-1}. In the domain where the T^3 - law holds, i.e. between 0.3 and 1.8°K, the Debye (Debaye)-temperature is $\Theta_D = 118.5 \pm 1$°K. The modification of Θ_D in case of higher temperatures is illustrated in a diagram. For bismuth the T^3-law holds for $T \leqslant 0.015\ \Theta_D$. The values obtained here for γ and Θ_D can be assumed to be quite reliable. Also the purity of the examined sample seems to be sufficient. Two diagrams illustrate the experimental points for bismuth with an admixture of 0.02 % lead. On that occasion no differences compared with the results for pure lead are observed. The coefficient in the linear term of the heat capacity is determined by the value of the mean density of the states of the electrons on the Fermi limit. The density of the states on the Fermi limit is $(dN/dE)_{E=E_0} = 2.85.10^{-2}$/atom.eV. The electrons will be in states which are near the bottom of the zone and for the energy the square dispersion law holds. The authors here compute the heat capacity of the electrons for the case that the Fermi surface consists of 3 similar ellipsoids which are displaced through 120° each. In this case the same result as for the isotropic model by Sommer-

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

The Specific Heat of Bismuth Between 0.3 and 4.4°K

feld (Zommerfel'd) is obtained as well. In bismuth all conduction electrons seem to take part in the de Haas - van Alfvén (De Gaaz-van Al'fen)-effect. All this speaks for the fact that the main share to the linear term of the heat capacity is given by the holes, which have a considerably higher effective mass and a lower limit energy than the electrons. From the heat capacity the limit energy of the holes can be computed and the value $E_o/k = T_o = 9{,}65°K$ is found, which is about 20 times lower than the limit energy of the electrons. There are 2 figures, 2 tables, and 15 references, 3 of which are Soviet.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute for Physical Problems of the AS USSR)

SUBMITTED: October 22, 1957

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

26723
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B109/B102

24.2200

AUTHORS: Borovik-Romanov, A. S., Kalinkina, I. N.

TITLE: Specific heat of the spin waves in antiferromagnetic $MnCO_3$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 5 (11), 1961, 1694 - 1696

4

TEXT: The authors studied the temperature dependence of the specific heat of antiferromagnetics in order to verify the hypotheses on spin-wave dispersion. The measurements were carried out between 1.6 and 80°K with $MnCO_3$ samples which had been prepared by a method according to N. Yu. Ikornikova at the Institut kristallografii AN SSSR (Institute of Crystallography AS USSR). Fig. 1 shows the temperature dependence of the molar specific heat of $MnCO_3$ (circles and boldface line; the lightface line holds for $CaCO_3$). The characteristic maximum corresponds to the conversion of $MnCO_3$ from the antiferromagnetic into the paramagnetic state. In order to obtain the purely magnetic heat capacity one has to

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Specific heat of the spin...

$C_M = (4\pi^2 k^2/5\mu_B)\lambda_0^0 T_N (T/T_N)^3 = aT^3$ which was given by A. S. Borovik-Romanov (ZhETF, 36, 766, 1959). Accordingly, the spin-wave theory is verified. It is plain to see in Fig. 2 that C_M increases considerably between 3.7 and 6°K, and that it is again proportional to T^3 between 6 and 8.5°K as was predicted in the theory. Academician P. L. Kapitsa is thanked for his interest, Professor P. G. Strelkov for advice. There are 2 figures and 8 references: 6 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: F. Simon, R. C. Swain. Zs. Phys. Chem. B 28, 189, 1935; A. H. Cooke, D. J. Edmonds. Proc. Phys. Soc., 71, 517, 1958.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR
(Institute of Physical Problems of the Academy of Sciences USSR)

SUBMITTED: October 11, 1961

Card 3/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

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S/056/62/043/006/011/067
B154/B102

AUTHOR: Kalinkina, I. N.

TITLE: Magnetic specific heat of antiferromagnetic Co, Ni, Mn, Fe carbonates

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2028 - 2037.

TEXT: In the temperature range 1.6° - 70°K the authors measured the magnetic specific heats C_m of $MnCO_3$, $NiCO_3$, $CoCO_3$, and $FeCO_3$ using a vacuum calorimeter described by Ye. S. Itskevich, P. G. Strelkov (ZhETF, 32, 467, 1957) for the range 1.6°K - 20°K and a vacuum adiabatic calorimeter described by P. G. Strelkov et al. (ZhFKh, 28, 459, 1954) for 12°K - 70°K. $C_m(T)$ reached maxima at 17.0°K ($CoCO_3$), 22.2°K ($NiCO_3$), 29.4°K ($MnCO_3$), 30.6°K ($FeCO_3$). From C(T) of the non-magnetic $CaCO_3$ the specific heat of the lattice $C_{latt.} = 2D(\Theta_D/T)$ can be extrapolated. Below 20°K, C = $1.85 \cdot 10^{-4}$ joule/mole·deg and Θ_D = 275°K. For $CaCO_3$ indeed C = 2D(275/T)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

up to 60°K. Good agreement with experiment is obtained when the Einstein function E(570/T) is added to the latter relation. By analogy one obtains for the other carbonates

$$MnCO_3: \quad C_{pem} = 2D(281/T) + E(567/T), \tag{2}$$

$$NiCO_3: \quad C_{pem} = 2D(386/T), \tag{3}$$

$$CoCO_3: \quad C_{pem} = 2D(354/T) + E(448/T), \tag{4}$$

$$FeCO_3: \quad C_{pem} = 2D(305/T) + E(525/T). \tag{5}$$

where D is the Debye function. $C_{pem} = C_{latt.}$ The entropy S_m corresponding to antiferromagnetic spin ordering of M^{++}, Fe^{++}, Co^{++} and Ni^{++} was calculated from the magnetic specific heat $C_{meas} - C_{latt.}$ and compared with the values found from $S_m = R \ln(2s + 1)$. C_m/T plotted as a function of T^2 at temperatures <6°K, shows that at low temperatures $C_m \sim T^3$. In case of Mn, Ni, Co carbonates the spin wave theory yields the equation

$$C_M = \frac{16\pi^3 k^3 \chi_\perp^0 T_N}{5g^2\mu_B^2}\,\eta\left(\frac{T}{T_N}\right)^3 = aT^3. \tag{6}$$

where $\chi_\perp^0$, g, η, and T_N were taken from earlier papers (e.g. A. S.

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Magnetic specific heat of... S/056/62/043/006/011/067
B154/B102

Borovik-Romanov. ZhETF, 36, 766, 1959). Excitation of the second branch of the spin wave spectrum is observed at temperatures close to $T_N/10$ for $MnCO_3$ and $T_N/3$ for $CoCO_3$ and $NiCO_3$. For Co, Ni, and Mn carbonates the values of a are equal to 13.5 and 15.3 and $18.0 \cdot 10^{-4}$ joule/mole·deg^4 and agree with those from magnetic measurements. The corresponding factors for $C_{latt.}$ are 0.9, 0.7 and $1.8 \cdot 10^{-4}$ joule/mole·deg^4. From the value of S_m it can be followed that for Co^{++} and Fe^{++} the lattice field splits the ground state so that a spin doublet appears and for Mn^{++} and Ni^{++} the levels s = 5/2 and s = 1 are the lower. There are 6 figures and 2 tables.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems of the Academy of Sciences USSR)

SUBMITTED: July 11, 1962

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BOOVIK-ROMANOV, A. S.; KALINKINA, I. N.

"Magnetic Specific Heat of Carbonates of Transition Elements"

Report presented at the Symposium on Ferrolectricity and Ferromagnetism, Leningrad, 30 May - 4 June 1963

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KALINKINA, I.N.

Temperature dependence of carbon resistance thermometers. Prib. i tekh. eksp. 8 no.3:204 My-Je '63. (MIRA 16:9)

1. Institut fizicheskikh problem AN SSSR.
(Thermometers)

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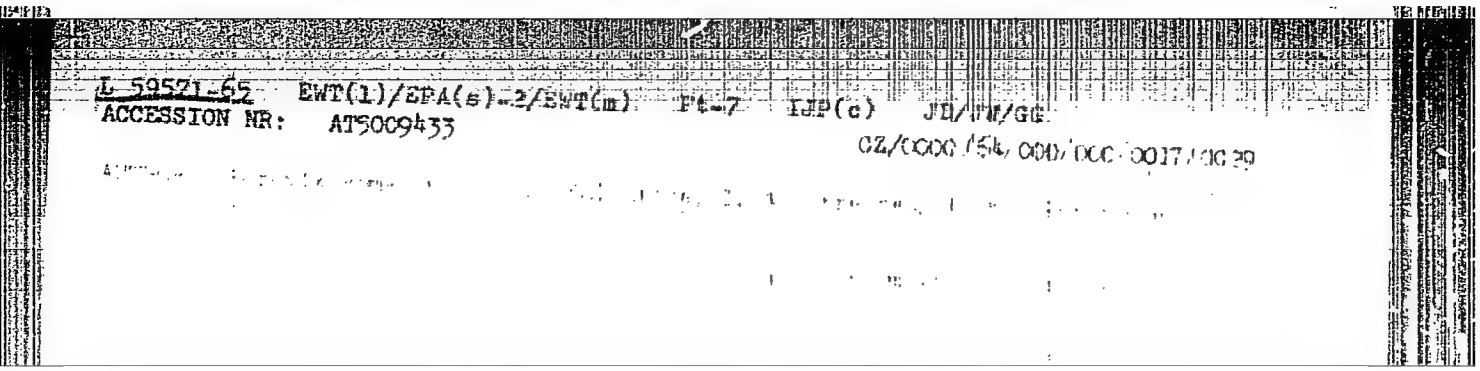

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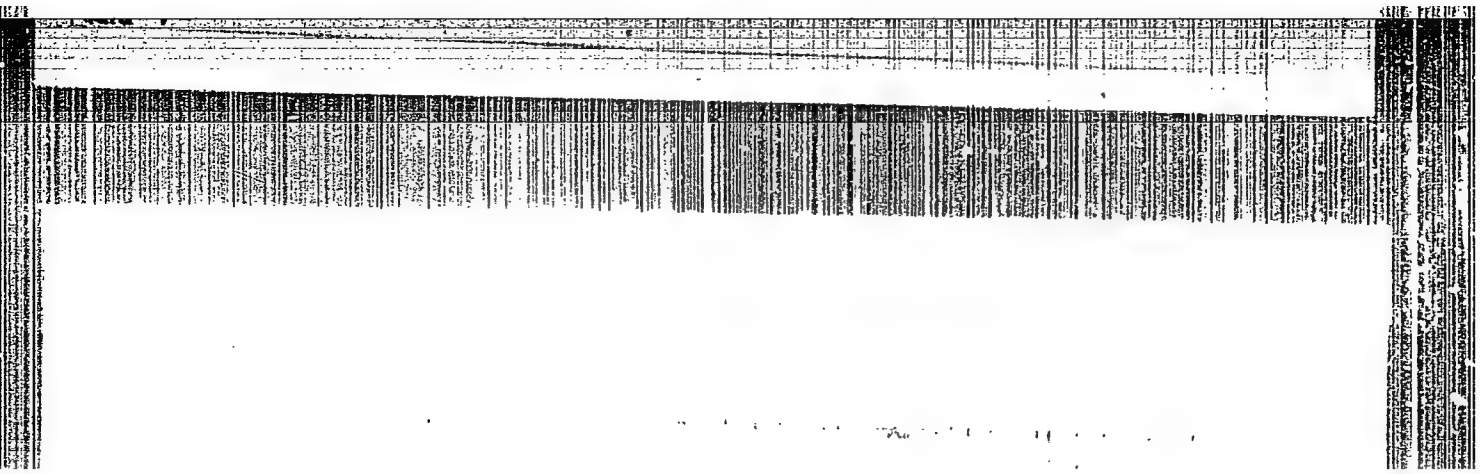

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

KOSTRYUKOV, V.N.; KALINKINA, I.N.

Heat capacity and entropy of Mn, Fe, Co, and Ni carbonates at low temperatures. Zhur. fiz. khim. 38 no.3:780-781 Mr '64.
(MIRA 17:7)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

L 21139-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/ETC(m)-6 IJP(c) JD/JW

ACC NR: AP6003783 SOURCE CODE: UR/0181/66/008/001/0176/0180

AUTHORS: Kalinkina, I. N.; Kostryukov, V. N.

ORG: Institute of Crystallography AN SSSR, Moscow (Institut kristallografii AN SSSR)

TITLE: Jumps of specific heat in antiferromagnetic carbonates

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 176-180

TOPIC TAGS: specific heat, carbonate, antiferromagnetic material, second order phase transition, transition metal, thermodynamic potential, nickel, iron, manganese, cobalt

ABSTRACT: The authors use earlier experimental results (ZhETF v. 41, 1694, 1961 and v. 43, 2028, 1962; ZhFKh v. 38, 780, 1964) on the carbonates of transition metals ($MnCO_3$, $NiCO_3$, $FeCO_3$, and $CoCO_3$) to calculate the discontinuities of the specific heat during the antiferromagnetic transition. The experimentally observed anomalies near the phase transition point do not agree quantitatively with the discontinuities that follow from the theory of second-order phase

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transitions. The authors calculated the discontinuity by using different extrapolations of the specific-heat curve from the low-temperature and the high-temperature sides, and using a formula derivable from the theory of the molecular field. The results can be reconciled with the experimental data for all metals except nickel, where the error reaches 20%. The results are used to estimate the coefficients of the expansion of the thermodynamic potential. The authors thank A. S. Borovik-Romanov for useful discussions. Orig. art. has: 6 figures, 6 formulas, and 2 tables.

SUB CODE: 20/ SUBM DATE: 12Jul65/ ORIG REF: 008/ OTH REF: 004

Card 2/2 ULR

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620110017-3

L 45161-66 EWT(1)

ACC NR: AP6031332 SOURCE CODE: UR/0386/66/004/003/0084/0086

AUTHOR: Kosourov, G. I.; Kalinkina, I. N.; Golovey, M. P.

ORG: Institute of Crystallography, Academy of Sciences, SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: Reconstruction of an image from a hologram in nonmonochromatic light

SOURCE: Zh. eksper. i teoret. fiz. Pis'ma v redaktsiyu. Prilozheniye v. 4, no. 3, 1966, 84-86

TOPIC TAGS: laser application, holography, optic image, information processing, coherent light

ABSTRACT: The requirements imposed on monochromatic light for satisfactory reconstruction of an image from a hologram may be much less stringent than the conditions necessary to obtain the hologram. When a light source with relatively broad spectrum is used for the reconstruction of the image, a separate image is obtained for each wavelength. The images differ in spatial position and in scale, and this reduces the sharpness of the image and consequently leads to a loss of some of the information contained in the hologram. The authors start with the premise that the reconstruction of a hologram in nonmonochromatic light constitutes an incoherent addition of images reconstructed from individual area elements of the hologram. The volume of information retained in the image then corresponds to the information contained in one area element and the action of the entire hologram reduces to an increase of the illumina-

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ACC NR: AP6031332

tion and the averaging of the graininess of the image due to the limited aperture of the light beam in the case when the hologram area is small. An elementary analysis, together with a calculation of the corresponding correlation functions, yields the formula for the linear D of the elementary hologram area, which determines the angular resolution, for a source of spectral width $\Delta\lambda$. The same formula determines the maximum permissible spectral interval at which the information contained in a hologram of given width is completely retained in the reconstructed image. The question is discussed whether it is also possible, by foregoing the redundant information in the hologram, to use a light source of equally broad spectral composition to obtain a hologram on an area corresponding to the value of D. Photographs are shown, reconstructed from a hologram obtained from a diapositive slide: (a) in laser light, (b) in green light from a powerful lamp, and (c) in the light from an incandescent lamp through a glass light filter. The dimensions of the hologram correspond to a 24 x 36 mm frame of a miniature camera. Analysis of the photographs and of the calculations indicate that a light source which is perfectly adequate for the reconstruction of an image of satisfactory quality may turn out to be utterly unsuitable for the production of a hologram. At the same time, there may exist a large number of problems and technical solutions in which the loss of information contained in the hologram is offset by the simplicity of reconstruction of the hologram in ordinary light sources. Orig. art. has: 1 figure and 1 formula.

[02]

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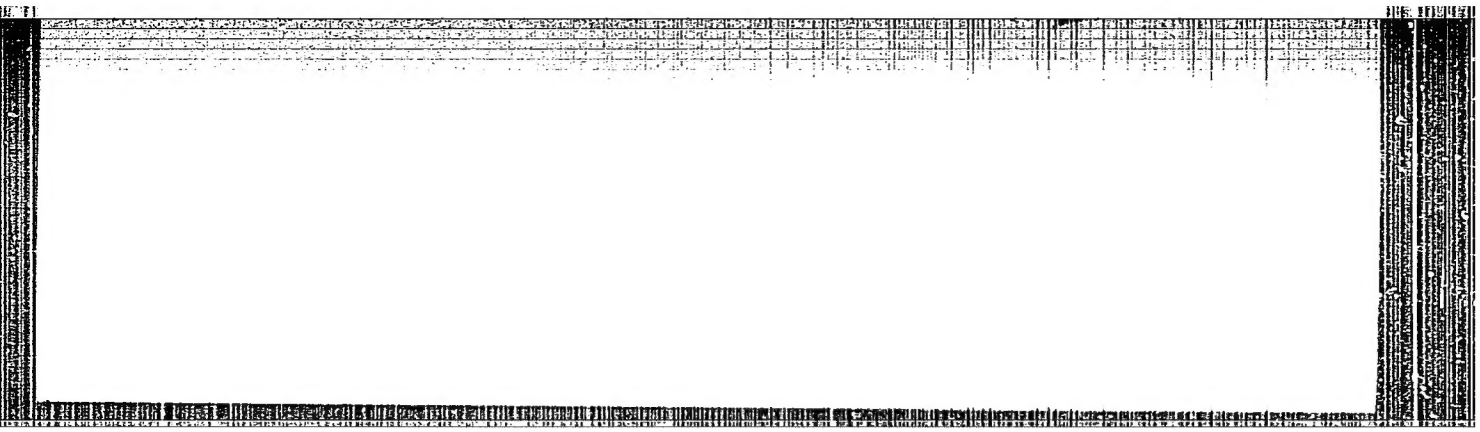

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